

## THE CURE OF FEMORAL HERNIA.<sup>1</sup>

RESULTS OF ONE HUNDRED AND TEN OPERATIONS BY A SINGLE METHOD.

BY WILLIAM BURTON DE GARMO, M.D.,

OF NEW YORK,

Professor of Special Surgery (Hernia) in the New York Post-Graduate Medical School and Hospital.

THIS title has been chosen as indicating a fairly large number of femoral hernias to have been operated upon by a single method, and by the same operator. Also, as indicating that a variety of methods are used by different operators, or even by the same operator.

It is only fair at the outset to state that any method that clears the femoral canal completely of all displaced tissue, and that constricts the femoral opening with a suture that is not too quickly absorbed, will be pretty sure to be attended by a fair amount of success.

As the operation to be described has been used by me for fifteen years, since March 4, 1890, in 110 cases with only one actual recurrence, it seems worthy of record. Its perfect simplicity and ease of performance would also make it seem desirable that it should be more generally known. While I have taught it during all of these years to my classes at the Post-Graduate Hospital, it has remained unpublished. It is so simple as to readily suggest itself, and undoubtedly has been used by many operators, both before and since I began it.

The cases here recorded have been met with in operating upon a series of 1250 abdominal hernias. The 110 femoral hernias were in 99 patients, 83 of whom were females and 16 males. Eighty-eight patients had single and 11 had double femoral hernia.

---

<sup>1</sup> Read before the Surgical Section of the New York Academy of Medicine, May 5, 1905.

Of the single hernias, 59 were on the right side and 29 on the left. One patient had double femoral hernia and left inguinal. Three had double inguinal and single femoral hernia. Two had single femoral and inguinal hernia on the same side, making five cases who had femoral and inguinal hernia on the same side. Six had femoral hernia on one and inguinal on the opposite side.

In 28 patients, strangulation of the hernia existed at the time of the operation, and 82 were operated upon for the cure of the hernia.

The ages were, 4 under 10 years of age; 6 between 10 and 20 years; 18 between 20 and 30 years; 34 between 30 and 40 years; 15 between 40 and 50 years; 11 between 50 and 60 years; 5 between 60 and 70 years; 5 between 70 and 80 years; 1 over 80 years.

The youngest patient was eight years of age and the oldest eighty-one years. The latter was operated upon in a private house, in the middle of the night, for femoral hernia of enormous size that had existed for thirty years and which had been strangulated for six hours. She lived nine years after the operation, during which time she wore no truss and had no recurrence.

*Mortality.*—In the entire number only one death has occurred, and that was an old woman of seventy years, who had suffered from strangulated hernia for three days, during which time she had been subjected to the most violent attempts at reduction. Perforation of the bowel was found, and, owing to the moribund condition of the patient, the intestine was fastened in the wound and freely opened. She died of exhaustion twenty-four hours later.

*Recurrences.*—In one case recurrence occurred three weeks after the operation from violent vomiting due to acute indigestion. This case was reoperated upon eight months afterwards, and has remained cured three years. One patient, a man, who had double inguinal and right femoral hernia, was supposed to have a recurrence of the femoral hernia. Upon reoperating, the protrusion was found to be subperitoneal fat that had slipped through under Poupart's ligament, but no

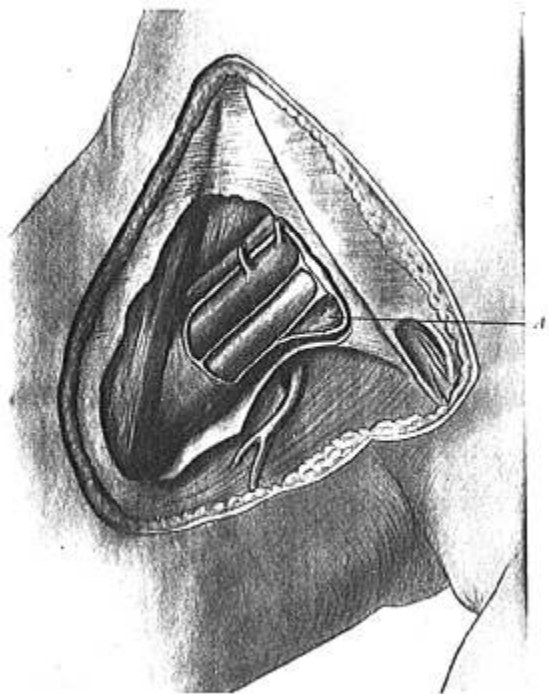


FIG. 1.—(Gray.) *A* showing small pocket by side of femoral vessels where hernia usually protrudes, breaking down Gimbernat's ligament and forming an elongated, triangular opening. The top of this triangle is Poupart's ligament, the floor the tissues covering the ramus of the pubes, its base the femoral vessels, and its point the spine of the pubes.

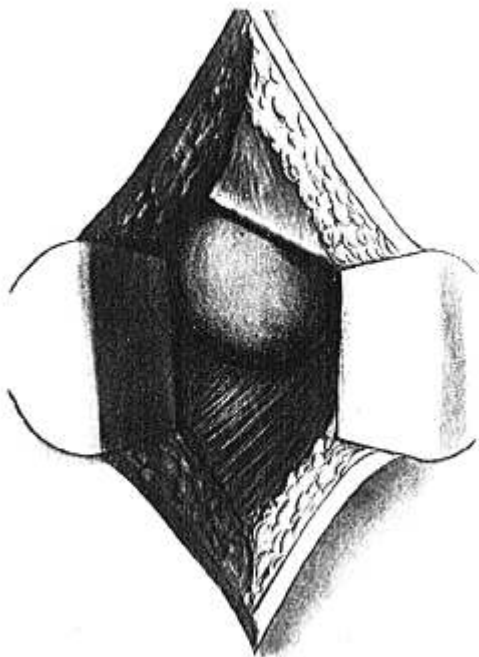


FIG. 2.—Showing protrusion under Poupart's ligament. The femoral vessels are to the outer side of the sac. The sac should have been shown with smaller neck.



FIG. 3.—Sac forcibly drawn down while being ligated and cut away. This after examining its interior to see that no adhesions exist.

hernial sac had formed. In one other case, believed to be identical with the one just narrated, a woman of thirty-five years, had a small swelling in the femoral region nine months after operation. A light truss was applied and worn one year, and she has now been five years without support and no protrusion. It is believed that this also was a small protrusion of subperitoneal fat, and absorption was produced by truss pressure. I have never seen a femoral hernia cured by truss pressure, no matter how young the patient nor how small the protrusion.

One woman of seventy-five years of age had a recurrence within eight months of the operation, and, so far as I know, this is the only actual recurrence. By far the greater number of these cases have been traced and the permanence of the cure ascertained.

Three cases operated upon were recurrent following some previous operation, the character of which is unknown. All of these recurrent cases have remained cured for more than four years.

Two cases had by mistake been operated upon for inguinal hernia, when, in reality, femoral hernia existed, and it is a rather remarkable fact that both were operated upon by operators noted in other lines of surgical work.

*Contents.*—Contents of the hernias were in most instances intestine or omentum, or both. In one instance, a small and unhealthy ovary was found in the sac. In two cases of strangulation with quite acute symptoms, appendices epiploicæ were found strangulated. In these cases the bowel itself was held firmly against the femoral opening, but the lumen of the intestine was not constricted. Cysts in or around the sac were found in four cases.

In one case, the daughter of a well-known physician, strangulation was coincident with the first protrusion of the hernia. In stepping from a railroad-car, the step being much higher than she had estimated, a hernia was forced through the femoral canal, and at once urgent symptoms presented.

*Operation.*—The incision for the operation here described should be between two and three inches long, parallel with

and to the inner side of the femoral vessels. (Fig. 1.) The upper angle of the wound should be well up over Poupart's ligament and extend down over the saphenous opening. Many times the line of separation between the superficial fascia and the deep transversalis fascia, that has been pushed down in front of the peritoneum by the hernia, will be so distinct as to lead the operator to feel that he has the true sac. On cutting through this, however, he will come upon the subperitoneal fat (sometimes mistaken for adherent omentum) and then reach the bluish-white, true hernial sac. As in other locations when the true sac is opened, there is almost uniformly found evidence of the normal abdominal fluid and the shiny surface characteristic of peritoneum.

When the skin and the superficial fascia are incised, usually the sac and its subperitoneal fat will come into the wound with the appearance of an encysted lipoma (Fig. 2), and, before separating the sac, it is best that this entire mass should be lifted out of its bed by thumb forceps and blunt dissection, so that its neck where it passes under Poupart's ligament shall be entirely free from its surroundings. By traction on the sac (Fig. 3) and its superimposed fat, this neck may not only be freed, but it will be materially lengthened, so that when it is finally ligated and cut off it will retract within the abdominal cavity, leaving the femoral canal free of foreign tissue. This is absolutely essential to the subsequent permanent cure of the case.

The sac should be opened, and where omentum is found adherent it should be carefully ligated, cut away, and its stump reduced to the abdominal cavity. Adherent intestine will rarely be found, but where it is, the adhesions must either be broken up, or, if too firm, the adherent part may be cut out of the sac and left attached to the bowel. When in doubt, the latter method is by far the safer. Adherent omentum is frequently found, and should be cut away after careful ligation.

The sac, having been entirely freed of its contents, is tied off as high up as possible while it is being forcibly drawn down by an assistant. Great care must be used to insure the perfect



Fig. 2.—Blunt needle used in putting sutures in place.



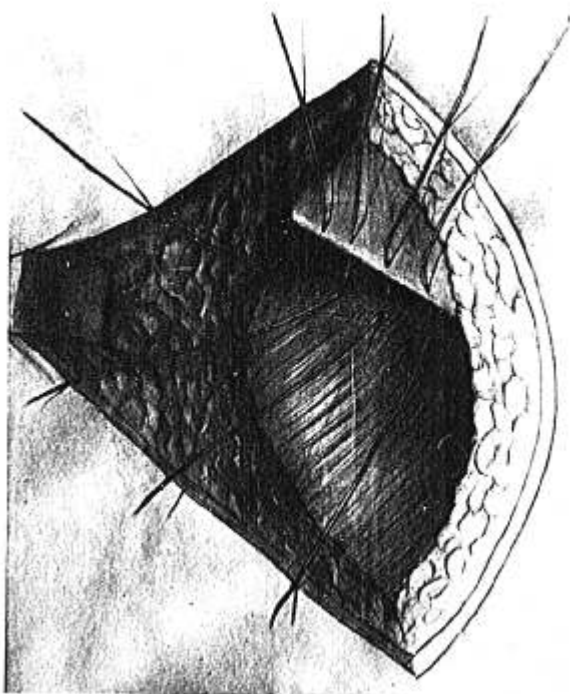


FIG. 5.—Showing sutures of kangaroo tendon passing through Poupart's ligament above and through all tissues to periosteum of ramus of pubes.



FIG. 6.—Showing depression of Poupart's ligament to ramus of pubes by sutures tied down.

freedom of the neck of the sac from protruding bowel or omentum while the ligature is being placed. After tying with strong catgut (a double strand of No. 2 plain is preferred), pass the needle, which has been previously threaded with it, through the neck of the sac and tie again. This gives a double ligature anchored by perforation between the two and prevents slipping off.

When the sac is cut away the stump should be examined to be sure that no bleeding vessels remain, and not until then should the ends of the ligature be cut. When the ligature is cut the stump usually retracts within the abdomen. If this is prevented by connective tissue which has not been broken, it should be carefully pushed back, leaving the femoral opening absolutely free.

This opening is closed in the following manner by good sized kangaroo tendon threaded in a strong blunt needle (Fig. 4). Press the end of the finger firmly into the femoral opening under Poupart's ligament, and pass the needle through the ligament upon the finger-point. This perforation should be well towards the outer side of the canal and close to the femoral vein. The operator should assure himself, by pressure of the finger against the ramus of the pubes, that the vessels are out of the way, and then pass the point of the needle fully down to the periosteum of the pubic bone, taking up all tissues over it. This constitutes the first stitch, but should not be tied until the others are in place. Others should then be placed in the same manner every quarter of an inch apart until near the spine of the pubes (Fig. 5). Usually three or four will completely close the femoral opening.

When tied down and the ends cut moderately close (Fig. 6), the fascia should be closed in by plain catgut, to avoid a pocket in the tissues that otherwise may result, and the skin may then be closed by buried sutures of plain catgut. I have usually covered the wound by collodion and a compress of sterilized gauze held in place by a figure-of-eight bandage.

In ten days the dressings are changed and a bandage for temporary support is applied. If healing has been complete,

the patient is allowed to sit up on the tenth day and leave the house on the fourteenth day after the operation.

The bandage used after the first dressing consists of a pelvic belt, of three thicknesses of canton flannel, with a compress of gauze over the former site of the hernia, and a perineal strap to prevent its slipping up. This is to be worn for four weeks. No truss or other permanent support should be worn.

As it is not an uncommon occurrence to have both inguinal and femoral hernia on the same side, it is deemed best to say a few words regarding the combined operations.

A single incision will answer every purpose, but it should be a little longer, beginning over the centre of the inguinal canal and curving downward, passing to the inner side and parallel with the femoral vessels to the saphenous opening. This incision gives easy access to both canals. The femoral sac should be removed and the canal closed in the manner already described, after which the inguinal hernia should be operated upon the same as though no complication existed.

*Suture.*—The idea that the suture in the operation described would make too much pressure on the femoral vein is a very natural one, but it is believed that with ordinary care this will never occur. At least in the cases presented no indication of undue pressure has ever been observed.

There has been no change in the technique of this operation during the fifteen years of its use by me, except in the suture material.

In the first twenty-two operations, No. 10 braided silk was used for closing the femoral opening. In three, silkworm gut was employed; but in the last eighty-five cases, *i.e.*, since November 20, 1896, kangaroo tendon has been used exclusively. There can be no question at the present day, it would seem to me, that the last-named substance approaches more nearly than any other the ideal suture for this purpose.

The deep sutures have been placed by a blunt needle with handle (Fig. 4). It is believed that the use of a sharp needle, or even a blunt needle in a holder, is attended by considerable danger of injury to the femoral vein.